



Draft Health Advisory: Safe Eating Guidelines for Fish from Lake Sonoma (Sonoma County) and Lake Mendocino (Mendocino County)

a fact sheet by the
Office of Environmental Health Hazard Assessment
California Environmental Protection Agency

August 2006

Why has OEHHHA developed “Safe Eating Guidelines” for fish from Lakes Sonoma and Mendocino?

Virtually all fish contain detectable levels of mercury; however, studies indicate that certain types of fish in Lake Sonoma and Lake Mendocino contain elevated levels of mercury that could pose a health risk to people who eat them frequently.

The Office of Environmental Health Hazard Assessment (OEHHHA) is responsible for issuing fish consumption guidelines for sport fish in California. OEHHHA reviewed information from studies conducted by the North Coast Regional Water Quality Control Board to evaluate the health effects of eating fish from Lake Sonoma and Lake Mendocino. Draft guidelines were developed to provide consumers with information on which fish and how much are safe to eat.

The safe eating guidelines include a “best choices” table that identifies, as appropriate, fish containing low levels of mercury that can be eaten up to two times a week. The guidelines also include a table with fish that should be eaten in moderation (one meal per week or less), and fish to avoid eating due to high levels of mercury. One set of guidelines applies to women of childbearing age and children age 17 years and younger, who are particularly sensitive to methylmercury (the most prevalent form of mercury in fish). A second set applies to women beyond their childbearing years and men.

Because methylmercury affects the developing nervous system, women of childbearing age and children age 17 years and younger should carefully follow guidelines for eating these fish.

Does the water in the lakes pose a hazard?

No. As explained below, mercury tends to accumulate in fish, but not in the water itself. Physical contact with the water is safe.

Why is mercury found in fish from this region?

Mercury contamination in fish is a global problem. Emissions from volcanoes and coal-burning power plants release mercury into the air, where it can be carried worldwide before being deposited into oceans, lakes, and reservoirs. In northern California, however, the presence of mercury in fish is also a legacy of mining. The California Coastal Range is rich in mineral deposits, including cinnabar, and was one of the most productive mercury districts in the world. Mining for mercury was an important activity in the area from the mid-1800s to the early 1960s. The region is rich in geothermal springs, which are also important sources of mercury and other ores. Mercury from natural weathering and mercury-containing waste from mines can contaminate nearby water bodies.

Once mercury accumulates in bottom sediments in lakes or other water bodies, bacteria convert mercury into a more toxic form known as methylmercury, which fish take in from their diet. Methylmercury can build up in fish to concentrations many thousands of times greater than mercury levels in the surrounding water. Because methylmercury accumulates in fish slowly over time, larger fish of a species usually have higher concentrations of methylmercury than smaller fish from the same

water body. Predatory fish, such as bass, tend to have higher levels of methylmercury than other fish, such as trout, which feed more on aquatic insects and other invertebrates.

What are the human health effects of methylmercury found in these fish?

Developing fetuses and children are especially sensitive to methylmercury. Pregnant women and nursing mothers can pass methylmercury to their babies through the placenta and through breast milk. Excessive exposure to methylmercury can affect the nervous system in children, leading to subtle decreases in learning ability, language skills, attention, and memory. These effects may occur through adolescence as the nervous system continues to develop. For this reason, a more conservative set of guidelines applies to women of childbearing age and children up to and including age 17.

In adults, the most subtle symptoms of methylmercury toxicity are numbness and tingling sensations in the hands and feet or around the mouth. The levels of methylmercury found in fish from Lakes Sonoma and Mendocino should not result in the health effects described above if the proposed guidelines are followed.

Can I still eat fish from these water bodies?

Yes. Fish are a nutritious part of the diet when eaten in moderate amounts. By following OEHHA's safe eating guidelines, you can still enjoy eating fish from these water bodies while minimizing the risk of health effects from exposure to methylmercury.

Because of the increased sensitivity to methylmercury during development, it is particularly important for women of childbearing age and children to follow the guidelines provided and select the types of fish that are lowest in mercury. Women of childbearing age and children are advised to avoid eating largemouth or smallmouth bass, but can eat up to one meal a week of sunfish or crappie from Lake Sonoma or Lake Mendocino, provided no other fish are eaten that week.

Choose fish that are low in mercury from the "Best Choices" guidelines to continue to enjoy the benefits of eating sport fish.

The safe eating guidelines allow for women beyond childbearing age and men to eat as many as two meals a week of sunfish or crappie from these lakes. Largemouth and smallmouth bass should only be eaten once a week or less, with no other fish eaten that week.

Because almost all ocean and freshwater fish contain some level of methylmercury, consider your total fish consumption when making choices about how much and which types of fish to eat. For example, the federal government advises women of childbearing age and children aged 17 years and younger not to eat shark, swordfish, king mackerel, or tilefish, because these ocean species tend to have high mercury levels. Women of childbearing age and children can safely eat up to two meals a week of a variety of commercial fish, but only if they do not eat sport fish from local water bodies in the same time period. If you eat fish caught from other water bodies in California, check whether OEHHA has issued an advisory for that location. If there are no consumption guidelines for a specific water body, fish caught from that location should be eaten in limited amounts.

What are the next steps in OEHHA's evaluation?

OEHHA is seeking public comment on the safe eating guidelines for Lake Sonoma and Lake Mendocino and the draft report that describes how they were developed. OEHHA staff scientists will make a presentation, answer questions, and accept comments on the draft advisories at a public workshop at 5:00 p.m. on September 19, 2006, at the North Coast Regional Water Board Office, 5550 Skylane Blvd., Suite A, Santa Rosa. Written comments can also be sent directly to Dr. Margy Gassel

at OEHHA's address below until October 2, 2006. OEHHA will review all comments before issuing a final report and consumption guidelines

Where can I get more information?

For information on mercury and other contaminants in sport fish in California, or to submit comments, contact:

Office of Environmental Health Hazard Assessment (OEHHA)
1515 Clay Street, 16th Floor
Oakland, California 94612
Telephone (510) 622-3170 FAX (510) 622-3218
Or visit the OEHHA Web site at: <http://www.oehha.ca.gov> (Click on "Fish")

For information on mercury in commercial fish, contact:

U.S. Food and Drug Administration
Center for Food Safety and Applied Nutrition
1 (888) SAFEFOOD or <http://www.cfsan.fda.gov/~dms/admehg3.html>

For information on mercury in fish in Lake Sonoma, contact:

Sonoma County Department of Health Services
Environmental Health Division
475 Aviation Blvd., Suite 220
Santa Rosa, CA 95403
(707)565-6565
www.sonoma-county.org/environmental

For information on mercury in fish in Lake Mendocino, call (707) 463-4466.

DRAFT SAFE EATING GUIDELINES

FISH CONSUMPTION FROM LAKE SONOMA

Fish are nutritious and should be part of a healthy, balanced diet. It is important, however, to choose your fish wisely. The American Heart Association recommends healthy adults eat at least two meals of fish a week. OEHHA recommends that you choose fish to eat that are lower in mercury. Because some types of fish from Lake Sonoma contain high levels of mercury, OEHHA provides the recommendations below that you can follow to reduce the risks from exposure to methylmercury in fish.



**Women of childbearing age, pregnant or breastfeeding women,
and children 17 years and younger**

EAT IN MODERATION No more than 1 meal a week
Sunfish or crappie
AVOID No more than 1 meal a month
Largemouth or smallmouth bass



Women beyond childbearing age and men

BEST CHOICES Up to 2 meals a week
Sunfish or crappie
EAT IN MODERATION No more than 1 meal a week
Largemouth or smallmouth bass

- **CONTACT WITH THE WATER IS SAFE.**
- **EAT SMALLER FISH OF LEGAL SIZE.** Fish build up mercury in their bodies as they grow.
- **MEAL SIZE DEPENDS ON BODY WEIGHT.** Meals are based on a 160-pound adult eating 8 ounces of fish (6 ounces after cooking) — about the size of two decks of cards. If you weigh less than 160 pounds, eat smaller portions of fish. Serve smaller meals to children.
- **DO NOT COMBINE FISH CONSUMPTION ADVICE.** Do not eat more than one of the listed fish species during the same time period unless you are eating from the Best Choices (green) category. If you eat fish from one place, following the advisory, avoid eating fish from other sources during the same time period.
- **CONSIDER THE FISH YOU BUY FROM STORES AND RESTAURANTS.** Women of childbearing age and children can safely eat up to 2 meals a week of most fish purchased in a store or restaurant, **OR** use this guide for eating fish caught from this water body. In a week when you eat 2 meals of fish purchased from stores or restaurants, avoid eating fish caught from a local water body. Commercial fish such as shrimp, king crab, scallops, farmed catfish, wild ocean salmon, oysters, tilapia, flounder, and sole generally contain some of the lowest levels of mercury. Women of childbearing age and children should not eat shark or swordfish, which contain the most mercury.
- **FISH FROM OTHER WATER BODIES MAY ALSO CONTAIN MERCURY.** Not all water bodies in California have been tested. With the exception of ocean or river-run salmon or steelhead, which may be consumed more frequently, fish caught from places without an advisory should be eaten in limited amounts.

For more information, contact OEHHA at (510) 622-3170 or visit www.oehha.ca.gov (Click on “Fish”)

DRAFT SAFE EATING GUIDELINES

FISH CONSUMPTION FROM LAKE MENDOCINO

Fish are nutritious and should be part of a healthy, balanced diet. It is important, however, to choose your fish wisely. The American Heart Association recommends healthy adults eat at least two meals of fish a week. OEHHA recommends that you choose fish to eat that are lower in mercury. Because some types of fish from Lake Mendocino contain high levels of mercury, OEHHA provides the recommendations below that you can follow to reduce the risks from exposure to methylmercury in fish.



**Women of childbearing age, pregnant or breastfeeding women,
and children 17 years and younger**

EAT IN MODERATION No more than 1 meal a week
Sunfish or crappie
AVOID No more than 1 meal a month
Largemouth or smallmouth bass



Women beyond childbearing age and men

BEST CHOICES Up to 2 meals a week
Sunfish or crappie
EAT IN MODERATION No more than 1 meal a week
Largemouth or smallmouth bass

- Incomplete information from Lake Mendocino indicates that you should avoid eating striped bass, and channel catfish should be eaten in limited amounts (no more than 1 meal a week).
- **CONTACT WITH THE WATER IS SAFE.**
- **EAT SMALLER FISH OF LEGAL SIZE.** Fish build up mercury in their bodies as they grow.
- **MEAL SIZE DEPENDS ON BODY WEIGHT.** Meals are based on a 160-pound adult eating 8 ounces of fish (6 ounces after cooking) — about the size of two decks of cards. If you weigh less than 160 pounds, eat smaller portions of fish. Serve smaller meals to children.
- **DO NOT COMBINE FISH CONSUMPTION ADVICE.** Do not eat more than one of the listed fish species during the same time period unless you are eating from the Best Choices (green) category. If you eat fish from one place, following the advisory, avoid eating fish from other sources during the same time period.
- **CONSIDER THE FISH YOU BUY FROM STORES AND RESTAURANTS.** Women of childbearing age and children can safely eat up to 2 meals a week of most fish purchased in a store or restaurant, **OR** use this guide for eating fish caught from this water body. In a week when you eat 2 meals of fish purchased from stores or restaurants, avoid eating fish caught from a local water body. Commercial fish such as shrimp, king crab, scallops, farmed catfish, wild ocean salmon, oysters, tilapia, flounder, and sole generally contain some of the lowest levels of mercury. Women of childbearing age and children should not eat shark or swordfish, which contain the most mercury.
- **FISH FROM OTHER WATER BODIES MAY ALSO CONTAIN MERCURY.** Not all water bodies in California have been tested. With the exception of ocean or river-run salmon or steelhead, which may be consumed more frequently, fish caught from places without an advisory should be eaten in limited amounts.